Claims

1. Method for the introduction of a liquid into a molten mass under pressure, comprising the steps of:

a) bringing said liquid to a predetermined pressure greater than the pressure of said molten mass;

b) feeding said liquid to a plurality of storage tanks (12);

c) injecting said liquid into said mass at an injection pressure equal to said predetermined pressure by means of a plurality of injectors (13) in respective fluid communication with said plurality of storage tanks (12).

2. Method according to claim 1, wherein the ratio by weight between said liquid and said molten mass is from 1:99 to 25:75.

3. Method according to claim 1, wherein said liquid is a dielectric liquid.

4. Method according to claim 1, wherein said molten mass comprises at least one thermoplastic polymer.

5. Method according to claim 4, wherein said thermoplastic polymer comprises at least one polyolefin.

6. Method according to claim 1, wherein the pressure of the molten mass is from about 10 bar to about 1400 bar.

7. Method according to claim 1 or 6, wherein said predetermined pressure to which said liquid is brought and at which said liquid is injected is within the range of 30-1500 bar.

8. Method according to claim 1, wherein said step a) of bringing the liquid to a predetermined pressure is carried out by means of at least one pump (10).

9. Method according to claim 8, wherein said pump (10) is a reciprocating positive-displacement pump comprising a plurality of pumping units (14) in respective fluid communication with said plurality of storage tanks (12) through a plurality of feeding lines (11).

10. Method according to claim 1, wherein said step b) of feeding the liquid is carried out

by feeding said liquid to each storage tank (12) of said plurality of storage tanks (12) through at least one pair of liquid feeding lines (11).

11. Method according to claim 1, wherein said step c) of injecting the liquid is driven mechanically.

12. Method according to claim 1, wherein said step c) of injecting the liquid is carried out into an extruder (2) within which said molten mass is received.

13. Method according to claim 12, further comprising the step of mixing said liquid with said molten mass within said extruder (2).

14. Method according to claim 12, wherein said extruder (2) is intended to extrude a layer of molten mass onto an electric cable element (3) for the transportation and/or the distribution of electrical power, said electric cable element (3) comprising at least one conductive element (4).

15. Method according to claim 14, wherein said step c) of injecting the liquid is carried out at a plurality of injection points angularly staggered by a predetermined angle in a zone of the extruder (2) in which said mass is in molten state.

16. Method according to claim 14 or 15, wherein said step c) of injecting the liquid is carried out at a plurality of injection points longitudinally staggered by a predetermined distance in a zone of the extruder (2) in which the mass is in molten state.

17. Method according to claim 1, further comprising the preliminary step of filtering said liquid.

18. Method according to claim 1, further comprising the step of maintaining said liquid at a predetermined temperature.

19. Plant (1) for the introduction of a liquid into a molten mass under pressure, comprising:

a) at least one pump (10) for bringing said liquid to a predetermined pressure greater than the pressure of said molten mass;

b) a plurality of storage tanks (12) of liquid in fluid communication with said at least one pump (10);

c) a plurality of injectors (13) in respective fluid communication with said plurality of storage tanks (12) for injecting said liquid into said molten mass at an injection pressure equal to said predetermined pressure.

20. Plant (1) according to claim 19, wherein said pump (10) is a reciprocating positive-displacement pump comprising a plurality of pumping units (14) in fluid communication with said plurality of storage tanks (12) through a respective plurality of feeding lines (11).

21. Plant (1) according to claim 20, wherein said feeding lines (11) are arranged in a plurality of pairs, each of said pairs of feeding lines (11) being in fluid communication with a respective pair of pumping units (14) and with a tank (12) of said plurality of storage tanks (12).

22. Plant (1) according to claim 19, wherein said injectors (13) are of the mechanical type.

23. Plant (1) according to claim 22, wherein said injectors (13) are driven by a spring calibrated at said injection pressure.

24. Plant (1) according to claim 19, wherein said plurality of injectors (13) is intended to inject said liquid into an extruder (2).

25. Plant (1) according to claim 24, wherein said injectors (13) are arranged at a plurality of injection points angularly staggered by a predetermined angle in a zone of the extruder (2) in which said mass is in molten state.

26. Plant (1) according to claim 25, comprising three injectors (13) angularly staggered from each other by 120°.

27. Plant (1) according to claim 24 or 25, wherein said injectors (13) are arranged at a plurality of injection points longitudinally staggered by a predetermined distance in a zone of the extruder (2) in which said mass is in molten state.

28. Plant (1) according to claim 19, further comprising a tank (16) for feeding the pump (10) maintained at a predetermined pressure.

29. Plant (1) according to claim 28, wherein said predetermined pressure of the feeding tank (16) is within the range of 1-5 bar.

30. Plant (1) according to claim 28, further comprising a filter placed between said feeding tank (16) and said pump (10).

31. Plant (1) according to claim 28, further comprising a pre-loading tank (18) in fluid communication with said tank (16) for feeding the pump (10).

32. Plant (1) according to claim 31, further comprising a filter at the inlet of said pre-loading tank (18).

33. Plant (1) according to claim 19, further comprising heating devices in heat-exchange relationship with said at least one pump (10), said plurality of storage tanks (12) and said plurality of injectors (13).